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# Similar or divergent paths? Religious development of Christian and Muslim adolescents in Western Europe



Müge Simsek\*, Fenella Fleischmann, Frank van Tubergen

Utrecht University, Padualaan 14, 3584 CH, Utrecht, the Netherlands

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Little is known about the religious development of youth in Europe. In light of the growing ethnic diversity of Western European populations, this paper examines two groups of youth with an immigrant background, i.e. Christian and Muslim youth, and compares their religiosity to that of Christian native youth. We differentiate between three indicators of religiosity, namely, subjective importance of religion, frequency of service attendance, and praying frequency. In addition to comparing the changes in the mean of religiosity between groups, we also investigate variations within groups over time. We employ the first three waves of the Children of Immigrants Longitudinal Survey in Four European Countries (CILS4EU), which were collected between 2010 and 2013 with adolescents residing in 958 classes within 480 schools in England, Germany, the Netherlands, and Sweden. Multiple group linear growth models show that there is an overall slight decrease in subjective importance of religion, frequency of service attendance and praying frequency for Christian youth, while Muslim youth do not experience any significant change on these accounts. Furthermore, the changes in service attendance and praying frequency vary significantly between youth within all groups, while the change with regard to subjective importance of religion varies most within Christian youth and least within Muslim youth.

#### 1. Introduction

The secularization paradigm predicts that the forces of modernization, urbanization and industrialization would drift the masses away from religious beliefs. A clear and steady rise in the number of religiously non-affiliated people in the traditionally Christian societies of Western Europe seemed to have proven right the proponents of secularization (Norris and Inglehart, 2011). Yet, over the last decades the religious composition of many Western European countries has significantly changed due to increased international migration with large numbers of immigrants being more religious and from non-Christian societies (Van Tubergen and Sindradottir, 2011), and Muslims constituting an increasing part of the immigrant population (Voas and Fleischmann, 2012). The religious discrepancy between native and immigrant populations has aroused interest in scholars regarding the religious future of both immigrant and native populations in these societies, and more particularly whether the religious trajectories of the immigrant population become similar to those of natives, or whether immigrants and natives diverge more strongly over time.

So far, relevant work has examined religious change of the foreign-born adult population, i.e. the so-called first generation of immigrants. Studies looking at the effect of international migration on immigrant religiosity in Europe (Van Tubergen, 2013) as well as in Canada (Connor, 2008, 2009) and the US (Massey and Higgins, 2011) suggest that on average religious participation of foreign-born immigrants declines after migration. Another line of research focused on intergenerational changes in religiosity, either by comparing synthetic immigrant generations or by comparing the religiosity of parent-child dyads. Comparisons of immigrant generations in Europe

E-mail addresses: m.simsek@uu.nl (M. Simsek), f.fleischmann@uu.nl (F. Fleischmann), f.vantubergen@uu.nl (F. van Tubergen).

<sup>\*</sup> Corresponding author.

revealed that religious involvement as well as religious identification among the Muslim second generation is somewhat weaker than among the first generation (Diehl and Schnell, 2006; Maliepaard et al., 2010; Phalet et al., 2008; Simsek et al., 2018). The opposite holds true in the US, where it has been found that second generation immigrants participate more often than the first generation (Alanezi and Sherkat, 2008). Studies focusing on religious transmission from parents to children revealed lower levels of religious participation and identification of Muslim youth compared to their parents (Maliepaard and Lubbers, 2013; Verkuyten et al., 2012; Van de Pol and van Tubergen, 2014) and similar levels of subjective importance of religion between Muslim youth and their parents (De Hoon and van Tubergen, 2014; Jacob and Kalter, 2013). However, these parent-child comparisons capture a single point in time and therefore cannot say much about how the religiosity of Muslim youth develops over time, and whether they deviate further from their parents later in life.

Due to the fact that previous research was often restricted to adult populations and has relied on comparisons of immigration generations, or parent-child dyads, it still remains unclear how the religious paths of immigrant youth in relation to native youth in Europe evolve during adolescence, i.e. intra-generational changes in religiosity among immigrant youth have been understudied. Empirical evidence from the US reveals that adolescence is the period in which a significant part of religious development takes place (Petts, 2009; Regnerus and Uecker, 2006; Smith et al., 2002) and religious disengagement most frequently occurs (Spilka et al., 2003). Therefore, studying religious change among youth during adolescence can shed light on the religious future of immigrant and native populations in Western Europe. We aim to contribute to the literature on religion and migration by answering the following research question: To what extent do immigrant and native youth from Christian and Muslim backgrounds in Western Europe differ in their religious development during adolescence?

We draw on the first three waves of the Children of Immigrants Longitudinal Survey in four European Countries (CILS4EU) and investigate changes in religiosity over a two-year period during adolescence. The three waves of CILS4EU were collected between 2010 and 2013 with youth aged between 13 and 20 years old in 958 classes in 480 schools in the Netherlands, Sweden, Germany and England (Kalter et al., 2016a,b,c). The survey oversampled immigrant youth and thus we are able to study youth from various religious backgrounds over time.

In doing so, we distinguish between public and private components of religiosity, namely, subjective importance of religion, service attendance and praying frequency. Subjective importance of religion captures a more personal and private form of religiosity whereas service attendance can be classified as a more public expression of religiosity. Praying, however, is more ambiguous in nature because it can be expressed publicly, e.g. by going to the mosque, but also privately.

#### 2. Religious development during adolescence

Our study extends existing research that examined intra-generational changes in religiosity. These studies suggest that a significant part of religious development takes place during adolescence, roughly the period between 11 and 21 years of age. For instance, longitudinal data from the US Survey of Adolescent Health in 1995 shows that the percentage of youth who are not affiliated with any religion is 9.9% among 13 year olds but increases to 14.8% among 18 year olds (Smith et al., 2002). Likewise in the Netherlands, based on data from the Family survey of Dutch population, Need and De Graaf (1996) report that leaving the church mostly occurs between 15 and 20 years of age, with 19–20 years being the peak age of becoming unchurched.

In addition to religious affiliation, religious participation also appears to wane over the adolescent years among US youth. The 1996 US Survey Monitoring the Future reveals that 43% of 8th graders report to attend services weekly as compared to only 33% of 12th graders (Smith et al., 2002). In addition, the percentage of youth who rarely attend religious services goes up by 9% over the four years of high school (Smith et al., 2002). Findings from the National Study of Youth and Religion, which is a longitudinal study of youth aged between 13 and 17 years in 2002, similarly show that the percentage of youth reporting that they never participate in religious services increases from 18% to 28% and the percentage of youth reporting weekly or more service attendance decreases by 13% between 2002 and 2005 (Denton et al., 2008). Likewise, survey research in the Netherlands between the years 1998 and 2006 shows that mosque attendance slightly decreases with age among 15-25 year-old Muslim minorities (Maliepaard and Lubbers, 2013). Although this aggregate declining trend in religiosity implies that youth overall become more secular over the adolescent years, Ozorak (1989) suggests that religious change occurs in a more polarized fashion: the decline in religiosity of the somewhat religious may conceal the growth among the very religious. Providing support for this argument, Regnerus and Uecker (2006) demonstrate that 20–22% of adolescents between 11 and 20 years of age in the US decreased their religious activities over a one-year period while another 15–18% of youth reported a substantial increase in religious participation.

Youth's religious background has been proposed to relate to such differential religious change over time. Some religious traditions have been shown to be more retentive than others and this has been linked to their strong group identity. Thus, in the US, Catholic youth have been found to be more likely to retain their religiosity than Protestants, atheists or Agnostics (Ozorak, 1989), and mainline Protestant youth were more likely to decrease their religiosity than Evangelical Protestants (Petts, 2009).

Given that empirical evidence on religious change during adolescence mainly comes from the US, and that these studies have focused on youth from various Christian denominations as well as Judaism and atheism/agnosticism (Ozorak, 1989; Regnerus et al., 2004; Regnerus and Uecker, 2006; Smith et al., 2002), less is known about the ways in which religious change is experienced during adolescence by youth from other religious traditions, specifically Muslims, in different national contexts. In Western Europe, Muslims stand out with their strong group identity (Verkuyten, 2007). Furthermore, Muslim youth have been found to be more religious than non-Muslim immigrant and native youth (De Hoon and van Tubergen, 2014; Simsek et al., 2018). If the American research regarding the role of strong religious group identities replicates in the context of Western Europe, we would therefore expect the trends of elevated religious retention among the most devoted to be most apparent among Muslim immigrant youth.

#### 3. Theory and hypotheses

In the following section, we develop two possible scenarios for religious change of Christian (immigrant and native) and Muslim

immigrant youth in Western Europe based on existing theory and research. According to the first scenario (*universal secularization*), there is a common pattern of secularization among all youth regardless of their immigrant or religious backgrounds. The second scenario (*selective secularization*) predicts secularization to apply only to some groups while other groups retain or even increase their religiosity.

#### 3.1. Scenario 1: universal secularization

As youth progress through adolescence, their social context becomes more diverse: they become more detached from their families and more involved with their broader social networks such as friends, peers, teachers, and others. Kelley and De Graaf (1997) argued that the national religious context provides the pool of potential people with whom youth interact, and as such is significant in contributing to the durability of religious beliefs. The religious context of the countries we study, namely, England, Germany, the Netherlands, and Sweden, is highly secular (Bruce, 2011) with declining rates of religious attendance and a growing share of non-affiliates over the last decades (e.g. Burkimsher, 2014). Therefore, the pool of people from which adolescents increasingly acquire their social networks is also mostly secular. Hence, it can be expected that all youth, regardless of their religious affiliation and immigrant status, experience a decline in their religiosity over time in the countries under study due to their greater exposure to secularization that comes with their broader social context during adolescence.

The expectation of a decrease in religiosity of immigrant youth can also be derived from classic assimilation theory. This theory posits that immigrants adapt to the host society in the long run by acquiring cultural traits, language, behaviour and attitudes of the members of the host society (Alba and Nee, 1997; Gordon, 1964; Park, 1950). With regard to the religiosity of immigrants in Europe, this would imply that they become increasingly secular over time. Accordingly, from the first scenario, we can derive the hypothesis predicting a decline in both public and private forms of religiosity of both native and immigrant youth.

H1. The subjective importance of religion, frequency of service attendance and praying decline among Christian native, Christian immigrant and Muslim immigrant youth during adolescence.

This hypothesis furthermore implies that declines within groups will be similar across all three measures of religiosity and declines across groups will be similar for the same measures of religiosity.

#### 3.2. Scenario 2: selective secularization

Although the countries under study offer an overall secular national context, it is still uncertain whether immigrant youth are equally exposed to this secular context as native youth. First of all, immigrant populations are on average more religious than native populations in these countries (Van Tubergen and Sindradottir, 2011). Secondly, the prevalence of segregated structures in host countries reduces opportunities for interaction between immigrant and native populations (Semyonov and Glikman, 2009; Semyonov et al., 2007). Immigrant youth are more likely to have immigrant neighbours around and are more befriended with co-ethnic and co-religious peers (Simsek et al., under review; Smith et al., 2016), and therefore are less likely to be raised in a secular community than native youth. Moreover, Kelley and De Graaf (1997) propose that highly religious parents in secular national contexts put extra effort into the religious socialization of their children, for instance by limiting their children's friendship or school choices. In the case of immigrants living in secular host societies, immigrant youth embody the religious future of the immigrant community. Therefore, in addition to parents, the immigrant community can be expected to take the religious socialization of youth seriously. Empirical evidence confirms the existence of community effects on religious upbringing of youth by demonstrating that being strongly embedded in a religious community facilitates intergenerational religious transmission for some Muslim immigrant groups (Maliepaard and Lubbers, 2013; Van de Pol and van Tubergen, 2014).

A similar reasoning for community effects can be derived from a segmented assimilation perspective, which suggests that minorities may hold on to their cultural heritage as a trade-off for integrating into the host society in other domains, e.g. economic, linguistic or education (Portes and Rumbaut, 2001; Zhou, 1997). Nevertheless, community effects on religious transmission are not guaranteed to be successful when one takes the contrasting secularizing effects of the wider context in the host societies into account. De Hoon and van Tubergen (2014) find that parental religious transmission is better realized in private aspects of religiosity, i.e. subjective importance of religion, than public aspects, i.e. service attendance. They reason that possible anti-immigrant sentiments in the host society may deter youth and their parents from displaying their religiosity in public. In light of this empirical finding, we argue that it might be easier for members of secular social contexts to monitor the public behaviour, e.g. visiting mosques, rather than the subjective importance of religion that is more private and not easily visible. Thus we can derive the expectation that the effect of the secular social context on youth will be most evident for public forms of religiosity, whereas community effects would be more successful in transmitting private forms of religiosity and thus buffer the decline in the subjective importance of religion for youth. Based on this scenario we hypothesize:

**H2.** Christian and Muslim immigrant youth experience a steeper decline in service attendance frequency than in their subjective importance of religion during adolescence.

With regard to praying, even though its private dimension should be immune to monitoring from the secular social context of youth, its public component is still susceptible to secular forces. Therefore observing a steeper decline in praying frequency than in subjective importance of religion among immigrant youth depends on whether or not the secularization in public praying is compensated by an increase in the private sphere, and this dependency renders H2 explorative for the differential change between praying and subjective importance of religion. Moreover, with regard to Christian native youth, H2 implies that decline within this group will be similar across all three measures of religiosity.

We argued that the expected decline in some aspects of religiosity may be delayed when immigrant youth resist the secularization forces of the receiving society. However, a more extreme outcome can also occur: some youth may increase their religiosity over time. Such an increase in religiosity among immigrants can be expected from the 'reactive ethnicity' approach (Portes and Rumbaut, 2001).

Reactive ethnicity' implies that as a reaction to negative experiences in the host society, such as discrimination or social exclusion, immigrants become self-conscious about their distinctiveness from the native group and in turn strengthen their ethnic identity to emphasize the boundary between native and immigrant groups (Portes and Rumbaut, 2001). Many studies using a variety of groups have found evidence for such immigrant identification based on the perceived rejection by the majority members (for a detailed account of the rejection-identification hypothesis see, Branscombe et al., 1999). Extending this approach to the realm of religion, Diehl and Koenig (2009) suggested that religion can be an alternative way of achieving social status and identity for immigrants in the absence of social approval and upward mobility in the host society. Although the existence of such 'reactive religiosity' has not yet been tested longitudinally, cross-sectional evidence suggests that there is indeed a positive association between perceived discrimination and higher levels of religious identification among Muslim minorities (Fleischmann et al., 2011; Maliepaard et al., 2015).

The insecurity theory of religion may further explain the mechanism behind the ideas of reactive religiosity. According to this theory, people who experience insecurities, which can be economic, cultural, physical or personal, would be more likely to find shelter in religion and hold strong religious beliefs (Norris and Inglehart, 2011). This is because such insecurities can be considered threats to the survival of the individual, which render the future unpredictable. In such situations, dogmatic rules of religious ideologies present a more predictable future to its followers (Norris and Inglehart, 2011). Belief in supernatural powers or in an afterlife, for instance, can ameliorate the anxiety brought by the insecure future (Immerzeel and van Tubergen, 2013). Accordingly, a lack of social approval and upward mobility in the host society may result in various economic as well as emotional difficulties for immigrants and give the impression that their future is not secured. Thus, one can argue that the necessity of religion to cope with such stress is accentuated in the lives of immigrants.

Considering the rising prevalence of strong anti-Muslim attitudes in Europe (Coenders et al., 2008; Savelkoul et al., 2011; Strabac and Listhaug, 2008), Muslim immigrants experience a more hostile context of reception than immigrants with a Christian religious affiliation. Consequently, if reactive religiosity occurs, it would be most likely among Muslim youth. To some extent, the notion of reactive religiosity entails a certain amount of assertiveness for immigrants to be able to strengthen a relatively disapproved identity (e.g. Muslim identity) in the host society. Thus, we expect the group of Muslim youth who increase their religiosity not to hesitate to express their religiosity publicly.

The reactive religiosity approach and the insecurity theory of religion seem to be competing explanations to the first and second hypotheses derived previously, however, it should be noted that we expect only a *small* group of Muslim youth to be exposed to a hostile environment and increase their religiosity while the arguments leading to H1 and H2 are applicable to the *majority* of the youth within each group. More specifically, the fact that we anticipate only decline (H1-H2) in religiosity for Christian native and Christian immigrant groups in both scenario 1 and 2 and consider the possibility of increase in religiosity for *some* youth *only* among Muslims implies that we expect that Muslim youth will have the highest within-group heterogeneity in religious change. In other words, we expect that among Muslim adolescents in particular differential religious development of youth will be most pronounced. Therefore, we hypothesize:

**H3.** The change in all aspects of religion during adolescence varies most within Muslim youth.

#### 4. Data and measurement

Data come from the first three waves of the Children of Immigrants Longitudinal Survey in Four European Countries (CILS4EU) (Kalter et al., 2016a,b,c). CILS4EU is a stratified longitudinal and nationally representative study of the youth population with an average age of 14.7 in 2010-11. The survey employed a stratified three-stage sample design. In the first stage, schools from a comprehensive national list were divided into strata according to the proportion of immigrant students. This was done to guarantee the desired number of pupils with an immigrant background in the sample. In addition, if applicable, further implicit stratification characteristics are used to make certain that the sample is representative of different school types and regions in one country. Within strata schools were selected with a probability proportional to their size and the school response rate was highest in Sweden with 76.8%, and 14.7% in England, 52.7% in Germany, 34.9% in the Netherlands. Accordingly, in all countries except Sweden, for each non-participating school, another school that is similar in educational track and immigrant proportion was sampled. After replacement, achieved response rates were 65.6%, 98.6%, 91.7% in England, Germany and the Netherlands, respectively. Overall school response rate was 83.2%. In the second stage, within each participating school, at least two classes within the same grade were sampled. In the third stage, within the sampled classes all students were selected. The non-response on the student level came from multiple sources. In Germany, only students who presented a written parental consent were allowed to participate in the survey (active consent, 85%), while in other countries parents could object to the participation of their child in the study (passive consent, England = < 0.01%, the Netherlands = 1.19%, Sweden < 0.01%). Furthermore, regardless of parental consent, students had the possibility to refuse to take part in the study or could be absent on the day of the survey (England = 19.5%, Germany = 4.16%, the Netherlands = 8.8%, Sweden = 13.9%). The resulting total student response rate was 84.7%. (England = 80.5%, Germany = 80.9%, the Netherlands = 91.1%, Sweden = 86.1%) and in-school questionnaires were administered to 18,716 students in 958 classes in 480 schools across the four countries. Further information on the response rates is available in the technical report (CILS4EU, 2016).

Data collection was spread over two years with approximately one year between each wave. <sup>1</sup> The schools that had participated in the first wave were approached again for wave 2 and 3. Some schools refused to take part in the study after wave 1. Respondents in the non-participating schools and respondents who had changed or left their schools<sup>2</sup> after the first wave, could not be surveyed in

<sup>&</sup>lt;sup>1</sup> Longitudinal weights for CILS4EU are not available yet. Thus, data are not weighted in any of the analyses employing multiple survey waves.

<sup>&</sup>lt;sup>2</sup> In some cases respondents changed their school classes between study waves, and these classes are additionally surveyed in wave 2 and 3 to retain the respondents in the study, which in turn resulted in a total sample size of 22,706 of respondents who participated in at least one wave of the study.

school in later waves. These respondents were surveyed outside the school context using telephone, postal and web surveys. Conditional on participation in wave 1 or 2 (during which the necessary contact information was collected), the response rates for wave 3 were 51.9% in England, 66.9% in Germany, 57.9% in the Netherlands, and 50.8% in Sweden. The sample size throughout the waves with the percentages of immigrant students can be found in the Appendix.

#### 4.1. Dependent variables

We study three indicators of religiosity. Subjective importance of religion refers to the more private aspects of religiosity. In all waves, respondents were asked 'How important is religion for you?' This measure takes values from 1 ('not at all important') to 4 ('very important'). Service attendance frequency is a measure of public expression of religion, capturing how often respondents attend religious meeting places. Adolescents were asked to specify one of the values on a 5-point scale ranging from 1 ('never') to 5 ('everyday') in each wave. Praying frequency is a self-reported scale measuring how often youth pray. Adolescents responded on a 6-point range scale from 1 ('never') to 6 ('five times a day or more') in each wave. Considering that praying requirements differ between Muslims and Christians, we recoded the answer category 6 ('five times a day or more') into 5 ('one to five times a day or more'). The Pearson correlation coefficient for subjective importance of religion and service attendance frequency in wave 1 is 0.532, while the pertaining coefficient for service attendance and praying frequency is 0.622 and 0.615 for service attendance and praying frequency.

Although throughout the study we are primarily interested in *trends* in religiosity, these become more meaningful when interpreted jointly with the initial levels of religiosity. In that regard, using praying frequency and subjective importance of religion in addition to religious service attendance enhances the comparison of levels of religiosity within and between groups in two ways. First, religious service attendance may not capture the level of religiosity of Muslim women accurately because men are expected to attend Friday prayers at the mosque while this does not hold for women. Second, because different religious traditions have different service requirements, visiting religious meeting places for Christian and Muslim groups may not be easily comparable. Praying frequency and subjective importance of religion, on the other hand, are not necessarily restricted to space or requirements of the religious traditions and thus may reflect the religious activity of youth more similarly across groups.

#### 4.2. Independent variables

We distinguish between three *groups* of youth based on the immigrant and religious background of the respondent, namely, Christian native, Christian immigrant and Muslim immigrant. The country of birth of the respondent and the respondent's biological parents were taken into account to determine respondents' migration background. If the respondent and both parents were born in the survey country, the respondent is classified as having no strong migration background, also described as native to the country of survey, such as Dutch, Swedish etc. The respondent is coded as immigrant in all other cases, namely, respondent born abroad (1st generation), respondent born in the survey country with both parents born abroad (2nd generation) or one parent born abroad (child of transnational marriage and intermarriage<sup>4</sup>). Regarding religious affiliation, we used information from wave 1, and categorized respondents as Christian or Muslim based on the answer to the question 'What is your religion?' We combined the information on youth's migration background with that of their religious affiliation to create the three groups mentioned above. Youth who did not belong to any of the three groups that are of interest to this study (e.g., non-religious native, Buddhist immigrant, etc.) are excluded from the study (N = 9228).

By subtracting the birthdate of the respondent from the survey date we calculate the precise *age* of the respondent at each wave. For descriptive analyses we use age in decimal years with 0.5 increments. In multiple group linear growth models we only control for age at wave 1 and estimate growth factors based on the time lags between survey waves, which were approximately one year. Respondents' ages range from 13 to 18 in the first wave, excluding three age outliers (10 and 19 years old), 14 to 19.5 in the second wave and 15 to 20 in the third wave. Table 1 provides a descriptive summary of the variables used in the analyses. A more detailed overview of the composition of immigrant groups with regard to migrant generation can be found in Table A2 in the Appendix.

#### 4.3. Missing data

The three groups, Christian native, Christian immigrant and Muslim immigrant, were determined mainly based on the information given by respondents in wave 1. Information on ethnicity and religious affiliation from waves 2 and 3 was used only when there were missing values on the corresponding items in wave 1. List-wise deletion was applied to cases in which the information about migration background and religious affiliation was missing in all three waves (6.7%). Regarding the age of the respondents, birthdate at wave 1 is taken into account in the calculations of the age variable, except in Germany where the exact birthdate was only asked in wave 3. The missing values on the item have been replaced by using the information from the other waves as well as the date of survey in each wave. In case the information for a respondent was missing in all three waves, these observations were list-wise deleted (0.3%). Missing values on our dependent variables are handled during the analyses using full information maximum likelihood (FIML).

 $<sup>^3</sup>$  All correlations are significant at p < 0.001, and are similar in later waves (results available upon request).

<sup>&</sup>lt;sup>4</sup> If at least one of the parents of the parent born in the survey country was born abroad, the respondent is classified as a child of transnational marriage (2.5<sup>th</sup> or 2.75<sup>th</sup> generation). If both parents of the parent born in the survey country were also born in the survey country, the respondents is coded as a child of intermarriage (the interethnic 2<sup>nd</sup> generation) (Dollmann et al., 2014).

**Table 1**Descriptive statistics of the sample at wave 1.

	Range	Christia	Christian native		immigrant	Muslim immigrant	
		Mean	SD	Mean	SD	Mean	SD
Subjective importance of religion	1–4	2.156	0.822	2.585	0.949	3.515	0.697
Service attendance frequency	1-5	1.938	0.888	2.216	1.030	2.485	1.245
Praying frequency	1-5	2.059	1.323	2.568	1.465	3.101	1.647
Age	13-18	14.669	0.522	14.744	0.595	14.837	0.662
N		61	104	2	591	3	3772

Note. Data are weighted for sampling design; the number of cases is not weighted for sampling design.

#### 5. Results

We first compare descriptive trends in religiosity within and between groups by looking at the group means of our three measures of religiosity across age ranging from 14 to 17. For the rest of the analyses, we use the full age range of our respondents, but because group means for relatively small samples are less reliable, we exclude the very small numbers of youth who are younger than 14 and older than 17 from these descriptive findings. Next, we describe, within each group, the percentages of youth who change or maintain their religiosity across waves for all three indicators. As observing change requires that youth participated in the survey at least during two time-points, we limit our sample for this descriptive analysis to youth who participated in the survey more than once and use the two most distant time-points available for computing the change. Thus, we compute the change between wave 1 and 3, and only if this information is not available, we use the change between wave 1 and 2 or between wave 2 and 3 instead. Because there are only slight differences between countries and in order to maintain a high statistical power for the relatively small Muslim and Christian immigrant groups we present figures with data pooled across countries. Country-specific results can be found in Figs. A1-A6 in the Appendix.

Fig. 1 shows that Muslim immigrant youth score highest on all three indicators of religiosity while Christian native youth have the lowest scores on all accounts. This difference is maintained across all ages as the group means of all three religiosity indicators change only very slightly with increasing age.

The group mean for Muslim immigrant youth shows stability in the subjective importance of religion when they get older and a slight increase on the other two accounts. For Christian native and immigrant youth, however, only service attendance frequency shows a declining trend while praying frequency and subjective importance of religion seem to be steady as Christian youth progress through adolescence.

Fig. 2 presents the percentages of youth who change or retain their religiosity over time within and between groups. Around 17% in all groups experience a decline on all three accounts of religiosity. Among Christian youth, the percentage of youth who increase their religiosity is lower than the percentage of youth who decrease their religiosity, but for Muslim youth this holds true only with regard to subjective importance of religion and service attendance. However, the overall differences between the percentages of youth who increase and decrease their religiosity seem quite minor, especially within Muslim immigrant youth. Interpreting Figs. 1 and 2 simultaneously, we observe that the seeming lack of change over time that we find in Fig. 1 conceals two opposing trends of decrease and increase that either cancel each other out, or add up to a slight average decrease, in all three groups.

We test our theoretical expectations concerning the two alternative scenarios of religious change by running a multiple group linear growth model (LGM) in Mplus for three groups, namely, Christian native, Christian immigrant, and Muslim immigrant youth, and for three indicators of religiosity at three time points as our outcome variables. Mplus takes a multivariate approach to growth modeling such that an outcome variable measured at multiple occasions creates a multivariate outcome vector, which is then used to estimate latent intercept and slope growth factors (Muthén and Muthén, 1998–2011). Moreover, Mplus enables us to estimate a model in which some of the observations on dependent variables have missing values using full information maximum likelihood (FIML), and thus we can include the respondents who have missing values in some of the dependent variables, e.g. respondents who have participated in at least one wave.

Given that the waves of data collection were spaced approximately one year apart, we assume equally distanced measurement points in our models. The growth factors were estimated based on this equidistant measurement points and further regressed on the time-invariant covariate in our model: age of the respondent at first measurement occasion. This variable is centered on its minimum value which allows for a meaningful interpretation of the intercepts in the model: they show the mean level of religious importance, service attendance and praying for respondents aged 13. Furthermore, to account for the stratified sampling design at the time of data collection, we employed clustering at the school level in our models and estimated robust standard errors. Finally, we allowed the residual variances of the three indicators of religiosity to correlate at the same measurement occasion, and by doing so we achieved a good model fit ( $\chi$ 2 = 74.858, df = 36 (p < 0.05); RMSEA = 0.016; CFI = 0.999, TFI = 0.997; SRMR = 0.006).

<sup>&</sup>lt;sup>5</sup> An alternative method would be to use multilevel regression models in which outcome variables measured at three occasions are considered to be nested within individuals. However, the multivariate approach of LGMs has the advantage over multi-leveling approach to allow flexible modeling of relationships between the outcomes such as correlated residuals over time and regressions among the outcomes over time (Muthén, and Muthén, 1998–2011). In addition, we can make more rigorous comparisons within groups between outcomes using equality constraints in LGMs, which provides a more rigorous test of our second hypothesis that predicts differential change over time depending on the specific indicator of religiosity and ethno-religious group.

 $<sup>^6</sup>$  Model fit is considered to be good if the  $\chi 2$ /df ratio is approaching 1, with cut-off values close to 0.95 for CFI, TLI and 0.06 for RMSEA and 0.08 for SRMR (Hooper et al., 2008).

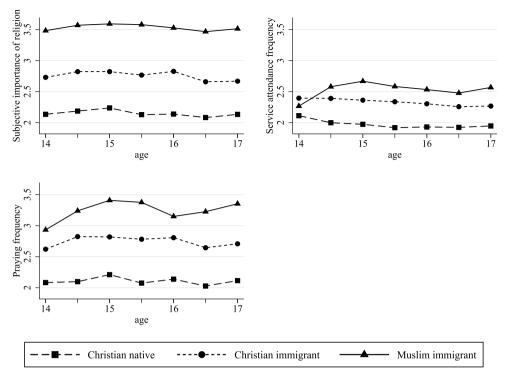


Fig. 1. Mean scores on three indicators of religiosity among Christian native, Christian immigrant and Muslim immigrant youth aged between 14 and 17 years old. Data are not weighted for sampling design. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant) for subjective importance of religion: 4963, 1980, 2643; service attendance frequency: 4963, 1980, 2637; praying frequency: 4962, 1983, 2683.

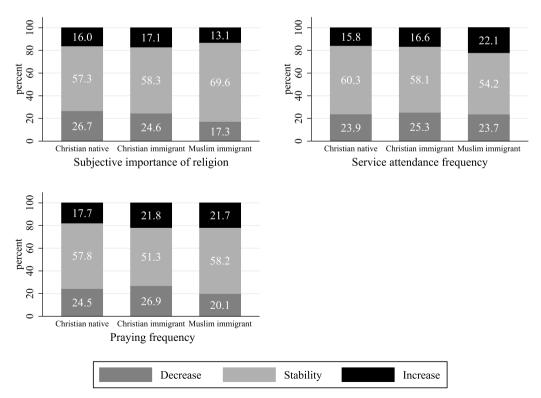


Fig. 2. Percentages of Christian native, Christian immigrant, and Muslim immigrant youth who decrease, maintain or increase their religiosity between waves. Data are not weighted for sampling design. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant) for subjective importance of religion: 5116, 2030, 2796; service attendance frequency: 5125, 2029, 2780; praying frequency: 5099, 2013, 2759.

Based on the first scenario, *universal secularization* would occur over all three indicators of religiosity across all groups under study, i.e. Christian native, Christian immigrant and Muslim immigrant, during adolescence (H1). The second scenario (*selective secularization*), however, envisages a steeper decline in service attendance than in subjective importance of religion for (Christian and Muslim) immigrant youth (H2). Based on the second scenario we further hypothesized that the change in all aspects of religiosity would vary most within Muslim youth during adolescence (H3). To test these hypotheses, we implement equality constraints in the model and test their significance with Wald tests and as such we examine 1) whether the change over time in the three indicators of religiosity differs between groups, and 2) whether the change over time differs within groups depending on the indicator, and 3) whether the variance of the intercept and slopes differ across groups.

Table 2 shows the estimates for intercept and slope growth factors for each group on each outcome of religiosity. In line with Table 1 and Fig. 1, estimates for intercepts reveal that Christian native youth have the lowest means on all three indicators of religiosity whereas Muslim youth score highest on subjective importance of religion and praying frequency, with the difference between the mean levels of religiosity among these two groups reaching as high as one unit on subjective importance of religion and praying frequency. Although Muslim youth have a higher mean service attendance than Christian native youth, Christian immigrant youth score highest on this item. Moreover, older Muslim adolescents have higher intercepts on all accounts of religiosity than younger Muslim adolescents whereas older Christian adolescents have lower initial scores on service attendance frequency than younger Christian adolescents. Yet, variances of the intercepts also indicate that the level of religiosity varies significantly between individuals within each group. For all indicators of religiosity intercept variances significantly differ from each other across groups. Regarding the subjective importance of religion, the intercept variance within Christian immigrant youth is highest whereas Muslim youth have the lowest intercept variance, implying uniformly high scores on subjective importance of religiosity among Muslim youth and the largest variability among Christian immigrant youth. With regard to service attendance and praying frequency, however, the intercepts vary most within Muslim youth and least within Christian native youth. This implies that a universally high level of subjective importance of religion is paired with a high level of heterogeneity in religious practices among Muslim youth.

In Table 2, coefficients of slopes refer to the effect of time for the means of religiosity of each group when time-invariant covariates are held constant at zero, while significant variances of the slope growth factors suggest that the growth rate varies between individuals. Accordingly, Christian native and immigrant youth experience a slight decline in their subjective importance of religion by around 0.11 over the two years we study. In addition, slope coefficients for service attendance and praying frequency ranging from -0.11 to -0.17 indicate an overall slight negative change during adolescence for Christian native and immigrant youth. Yet, the negative change in subjective importance of religion and service attendance gets less steep for Christian native youth when they get older, and a similar age effect on praying and service attendance frequency exists for Christian immigrant youth. Muslims, however, do not show a significant change on any of the indicators of religiosity, and age is unrelated to change in religiosity in this group. Finally, results of Wald tests demonstrate that the effect of time on the three indicators of religiosity for Christian immigrant and native youth do not significantly differ from each other, which partially confirms our hypothesis H1 on universal secularization for these two groups, and thereby leads us to reject our alternative hypothesis, H2, on selective secularization for Christian immigrant youth. H1 is clearly rejected for Muslims, because we found no evidence of secularization during adolescence. H2 is not confirmed for this group either, as there are no significant changes over time in any of the three indicators, while H2 predicted a decline in service attendance, but stability in religious importance. With regard to within-group variation in religious change, between-group comparisons of slope variances do not provide support for our hypothesis H3. Muslim youth show the largest variation in the change in praying and service attendance frequency over two years, however, the variation in the change in service attendance frequency for Muslims is not significantly different from that of Christian immigrant youth and the variation in change in praying frequency is similar across all three groups. Moreover, the variation with respect to the change in subjective importance of religion is largest within Christian youth and smallest within Muslim youth. However, the very high intercept of the subjective importance of religion among Muslims implies that this is most likely due to a ceiling effect that prevents the subjective importance of religion to further increase for this group of youth during adolescence.

#### 6. Robustness checks

We carried out further analyses to assess the robustness of the findings. First, assuming equally distanced measurement points provides a parsimonious model yet may not fully capture the reality of our longitudinal data collection accurately. In fact, the distance between two waves was somewhat shorter than one year for some students, and somewhat longer for others. To check whether assuming equidistant measurement points affects our findings, we ran a multiple group linear growth model with individually-varying times of observation using the exact age of the respondent at each measurement occasion to estimate the growth factors. In this model, both intercept and slope growth factors are calculated as random effects, as opposed to the fixed effects model we present above. Due to the small variances in slope growth factors, we encountered convergence problems when calculating these random effects models, which already indicates that the slopes are better estimated as fixed effects rather than random. Centering age on its minimum value in the estimation of the growth factors aided the model in achieving a slow convergence. The growth factors of this model, which are displayed in Table A3 in the Appendix, did not differ much from the model which assumed measurement points to be equally distant. The only exception is that we find a significant negative slope coefficient for Muslim youth on subjective importance of religion in the random effects model, which was not significant in the model assuming equidistant measurement points. This finding is in line with our results shown in Fig. 2 that the percentage of Muslim

<sup>&</sup>lt;sup>7</sup> Service attendance requirements are likely to differ for girls and boys among Muslims. Thus, we have re-run the main model separately for boys and girls to check the robustness of our findings with regard to the variation in change in service attendance frequency. Results suggest that both Muslim girls and boys show high variation in service attendance frequency; moreover, gender-specific variation is not significantly different from that of their Christian same-gender counterparts, both native and immigrant (results available upon request).

**Table 2**Multiple group linear growth models for three indicators of religiosity.

		Christian	native	Christian i	Christian immigrant		Muslim immigrant	
		Coeff.		Coeff.		Coeff.		
		Mean	Variance	Mean	Variance	Mean	Variance	
Subjective importance of religion	Intercept	2.163	0.537°	2.803	0.741 <sup>s</sup>	3.493	0.276 <sup>t</sup>	
	Age at wave 1	0.026		0.017		0.060		
	Slope	$-0.105^{1,a}$	$0.080^{\rm g}$	$-0.108^{2,a}$	0.081 <sup>g</sup>	$-0.019^{3,b}$	0.036 <sup>h</sup>	
	Age at wave 1	0.022		0.028		-0.009		
Service attendance frequency	Intercept	2.253	0.612 <sup>u</sup>	2.576	$0.932^{v}$	2.268	1.262 <sup>w</sup>	
	Age at wave 1	-0.170		-0.124		0.191		
	Slope	$-0.158^{1,c}$	0.070 <sup>i</sup>	$-0.166^{2,c}$	0.076 <sup>i,j</sup>	$0.012^{3,d}$	$0.131^{j}$	
	Age at wave 1	0.063		0.065		-0.011		
Praying frequency	Intercept	2.179	1.598 <sup>x</sup>	2.914	1.896 <sup>y</sup>	3.064	$2.254^{z}$	
	Age at wave 1	-0.026		-0.056		0.119		
	Slope	$-0.105^{1,e}$	$0.189^{k}$	$-0.154^{2,e}$	$0.169^{k}$	$0.017^{3,f}$	$0.254^{k}$	
	Age at wave 1	0.028		0.056		0.010		
N	· ·	610	)3	25	90	3771		

*Note.* Bold parameters express significance at p < 0.05. Data are not weighted for sampling design. Age is centered on its minimum value. Coefficients that are not significantly different share the same superscript, with numbers indicating within-group comparisons between indicators of religiosity, and letters indicating between-group comparisons of means of slopes (a-f), of variances of slopes (g-k) and intercepts (r-z), respectively.

youth with decreasing scores in subjective importance of religion is higher than the percentage of Muslim youth with increasing scores. However, considering that this slope is non-significant in the fixed effects model and taking into account the ceiling effect among Muslim youth when it comes to the subjective importance of religion (mean values are so high that upward change is hardly possible), we conclude that there is no robust evidence for a declining trend of subjective importance of religion among Muslim youth. Moreover, the slow convergence of the random effects model and comparison of tests of model fit between this model and our main model<sup>8</sup> suggests that our main model is a better fit to the data. Thus, assuming that the time lapse between survey waves is the same for all respondents does not drastically matter for our findings regarding group differences in changes in religiosity during adolescence.

Second, given that we have used pooled data from four countries for our main analyses we decided to investigate the findings across four countries more thoroughly by re-running the same linear growth model this time with twelve groups, i.e. the three groups in each of the four countries. In these multiple group LGMs, the model may fit one group better than the other and achieving an overall model fit gets more difficult with an increased number of groups. Accordingly, due to the linear dependency between service attendance and praying frequency in some groups, we could only achieve a good model fit by excluding one of these two indicators from the analysis and by creating two alternative models, one with service attendance frequency and one with praying frequency in addition to subjective importance of religion as outcome variables. It should be noted that omitting one indicator of religiosity makes these alternative models not strictly comparable to our main model. Nevertheless, findings of the alternative models reveal that Christian immigrant youth do not experience a uniform decline in service attendance and praying frequency in all countries, whereas the results for Christian native and Muslim immigrant youth and for variation on religious change between three groups across four countries are quite in line with the findings of our main model (see Tables A4 and A5 in the Appendix). Importantly, the main conclusions we draw when we use these alternative models do not change significantly from the conclusions based on the main model.

Third, our main model does not take into account denominational differences within religious affiliations in our analyses. Nevertheless, adherents of some denominations may show more perseverance than others with regard to their religious development during adolescence (Ozorak, 1989). Our data do not provide the means to identify distinct denominations for Muslim youth; it is, however, possible to look at the religious trends of Catholics and Protestants separately in two countries, namely, Germany and the Netherlands. Accordingly, we added being Protestant as a categorical covariate in the same multiple group LGM and ran this model only for two countries (see Table A6). While we find that Protestant native youth display higher initial levels of religiosity on all three accounts than Catholic native youth, we do not observe any significant denomination-related differences among native youth with regard to the estimates of slopes in any of the indicators of religiosity. Regarding Christian immigrant youth, Catholics do not significantly differ from Protestants either in their initial scores or in their development on all accounts of religiosity over two years. Importantly, in this model, the estimates of the slopes for Christian youth are not consistently significant for all indicators of religiosity; slope coefficient for service attendance frequency for native youth is not significant and for immigrant youth only the slope

<sup>&</sup>lt;sup>8</sup> The BIC value of the model with fixed effects is smaller than the BIC value of the model with random effects (results available upon request).

<sup>9</sup> Only in Germany and the Netherlands, the questionnaire item on religious affiliation has further specifications for Christianity, namely.

<sup>&</sup>lt;sup>9</sup> Only in Germany and the Netherlands, the questionnaire item on religious affiliation has further specifications for Christianity, namely, Christianity: Catholic and Christianity: Protestant.

<sup>&</sup>lt;sup>10</sup> As a result of adding a dummy variable for being Protestant, the intercept and slope coefficients in this model represent the estimates for the reference category, i.e., Catholic youth for the two Christian groups.

<sup>&</sup>lt;sup>11</sup> As a further robustness check, we also included parental socioeconomic status and school performance in this model, and the findings were similar across the models (results available upon request).

coefficient for praying frequency displays statistical significance. Overall, Catholic and Protestant youth in our sample exhibit similar religious trajectories over two years during adolescence and taking denominational differences among Christian youth into account does not fundamentally affect our main conclusions.

Fourth, we further wanted to check that our results are not due to the fact that the composition of the groups differ in relation to a number of demographic indicators, namely, gender, parental socioeconomic status, 12 living with two biological parents and school performance, 13.14 In addition, controlling for migrant generational status can provide insights into the group differences we observe in our main model. Thus, as a final robustness check, we re-ran the same multiple group LGMs by including these time-invariant control variables (see Figs. A7-A9). In doing so we followed a two-step procedure. In the first step we included only continuous timeinvariant covariates, i.e., age, parental socioeconomic status and school performance at wave 1, in the model. In the second step we ran the LGM with continuous control variables multiple times by adding each time only one categorical covariate of interest to the model.<sup>15</sup> Findings are robust with respect to parental socioeconomic status and school performance. Furthermore we find that Christian native girls have significantly higher intercepts than Christian native boys on all indicators of religiosity while the opposite holds for Muslim girls and boys in relation to service attendance and praying frequency. However, we do not find gender differences in the slope coefficients for any group, except that Christian native girls tend to experience a slightly steeper decline than Christian native boys in their praying frequency. Our findings are also robust in relation to living with two biological parents. While we find that residing with two biological parents is significantly and positively associated with the initial scores on all three indicators of religiosity, this indicator does not have any effect on the religious development over two years during adolescence. Finally, findings are preserved to a great extent across different migrant generations. The slight deviations from the findings of our main model contain the non-significant estimates of the slope for subjective importance of religion for Christian 1st generation and children of transnational marriages, as well as the non-significant slope coefficient for praying frequency for Christian children of transnational marriage. In addition, we find that Muslim children of intermarriage differ from the other migrant generations and experience a slight decline in their subjective importance of religion and praying frequency. Overall, however, these robustness checks do not change the conclusions drawn from the main (and more parsimonious) models.

#### 7. Conclusion

This study investigated to what extent native and immigrant youth from Christian and Muslim backgrounds in Western Europe differ in their religious development during adolescence. Based on the literature on religious development during adolescence, religious change over the life-course and religion and migration, we developed two alternative scenarios: the first implied the universal success of secularization for all youth on all indicators of religiosity, whereas the second scenario predicted less secularization in private than in public aspects of religiosity among immigrant youth. In addition, we considered the possibility of an increase on all accounts of religiosity for some Muslim youth. We analysed rich panel data from four European countries (CILS4EU) in two steps; first, a descriptive analysis showed trends in religiosity within and between groups, second, a series of multiple group linear growth models (LGM) was applied to test our theoretical expectations. The results of both analyses show that on average, there are only slight changes in the mean levels of religiosity during adolescence in all three groups, but at the same time, the rate of change varies greatly between individuals within groups.

Between-group comparisons of Christian natives and Christian immigrants revealed that these two groups follow quite similar religious pathways during the adolescent years, as both become slightly more secular on all indicators of religiosity. In contrast, Muslim youth on average do not experience any significant change in subjective importance of religion, service attendance and praying frequency during the same developmental stage. Muslims have repeatedly shown to exhibit high levels of religious identification with only little variation between individuals, both in adult samples (Verkuyten, 2007) and among youth (Simsek et al., 2018). So, our findings that Muslims are more retentive in their levels of religiosity than Christians can be related to their strong group identity, as it has been previously pointed out that religious groups with a strong group identity are better in preserving the religiosity of their members throughout adolescence (Ozorak, 1989; Petts, 2009). However, a high within-group variability with regard to the rate of change in service attendance and praying frequency among Muslims shows that this immigrant group is quite heterogeneous in its religious development during adolescence, with some youth becoming less and others more religious over time. This is less the case among Christian youth (both native and immigrant)

<sup>&</sup>lt;sup>12</sup> Parental socioeconomic measure is based on the International Socioeconomic Index of occupational status (ISEI-08) (Ganzeboom et al., 1992) and captures the highest score in the household with regard to the occupational status of the biological mother and father.

<sup>&</sup>lt;sup>13</sup> Both family structure (e.g. being raised in a two-parent household) and education have been suggested to be related to the religious socialization and thus matter for adolescent religious development (Levenson et al., 2005; Petts, 2009; Regnerus and Uecker, 2006).

<sup>14</sup> For school performance we use a mean index of how well the respondent thinks she/he is doing in Maths and language (of the survey country).

<sup>&</sup>lt;sup>15</sup> Growth factors of multiple group LGMs that include categorical covariates do not represent the estimated means for the main groups (e.g. Muslim immigrants) but correspond to the estimates of intercepts and slopes for the reference categories of the categorical variables incorporated in the model (e.g. Muslim 2<sup>nd</sup> generation immigrant girls who do not live with their two biological parents in a model that adds migrant generational status, male gender and living with two biological parents simultaneously as covariates). Moreover, comparison of the estimates of intercepts and slopes for such small sized subpopulations (e.g., Muslim 2<sup>nd</sup> generation immigrant girls who do not live with their two biological parents) would introduce more uncertainty in the findings such as increasing the likelihood that we find significant results by chance. Because the growth factors of a LGM with multiple categorical covariates would not be very informative and do not serve the comparative purpose of this study, we added categorical covariates separately in the models. Furthermore, for categorical indicators with more than two categories, we re-ran the same models by changing the reference categories to obtain the exact estimates for the growth factors for each category of the covariates.

who show more uniformly declining trends, even if the absolute rates of change are not very impressive. Overall, our finding that the rate of change on all indicators of religiosity varies significantly within all groups provides support for the suggestion that religious change among adolescents occurs in a polarized fashion (Ozorak, 1989; Petts, 2009). Thus, when analysing trends at the aggregate group level, the decline in religiosity of some youth is masked by the similar amount of growth in religiosity of a similarly large share of other youth. Teasing apart these differential development is important, as changes over time aggregated at the group level would otherwise misleadingly suggest that there is mainly stability in religiosity during the adolescent years.

High variations in the changes in service attendance and praying frequency within Muslims are in line with our expectations of a 'reactive religiosity' approach (Diehl and Koenig, 2009) among a share of Muslim immigrant youth. However, at the same time Muslim immigrant youth showed the lowest variation in change in subjective importance of religion, which is not entirely in line with this approach. However, this does not necessarily invalidate the position that Muslims have high within-group variability in relation to changes on all measures of religiosity when one takes into account the ceiling effect in the subjective importance of religion: because the group mean on this indicator is already very high among Muslim immigrant youth in the first wave, there is not much room for further increase among the most committed. Therefore, variation in this indicator can only be realized by decreasing scores of subjective importance of religion, which are unlikely to occur if reactive religiosity is indeed apparent.

Our study also had some limitations. First, it was limited to changes in religiosity over a two-year period and even though we included the full age range, 13-20, of our respondents in our analyses, the majority of our respondents were aged between 14 and 17. If we could cover a longer time period in our study, we would probably capture more changes in the religiosity of youth. Life events such as leaving the parental home, cohabiting and starting tertiary education have been associated with changes in religiosity and these events typically occur beyond adolescence in early adulthood (Uecker et al., 2007). Second, the Christian native and Christian and Muslim immigrant groups we studied may differ with respect to their average parental religiosity and this likely contributes to the observed dissimilarities in the religious development of Christian and Muslim youth over two years. We could not incorporate parental religiosity in our analyses due to the large number of missing values on this item. Certainly, integrating measures on parental religiosity in mapping the religious development of Christian and Muslim youth would benefit future research. Third, we could examine the robustness of our findings in relation to only two denominations, Catholic and Protestant and only in two countries, Germany and the Netherlands. Moreover, we were unable to shed light on the religious paths of adolescents from different Muslim denominations. Future research should attempt to study the denomination-related differences in adolescent religious development in greater depth. Fourth, we have demonstrated that our findings are robust in relation to a number of time-invariant factors; however, we could not take into account the changes in the various aspects of adolescents' lives over two years, such as losing a parent or experiencing sudden failure at school, which could be linked to changes in adolescent religiosity. However, we should also stress that we have no theoretical expectations that such changes would disproportionately occur across the groups we studied and fundamentally affect the trends we observed across Christian and Muslim youth. Fifth, there is a possibility that the age effects we study are mainly period effects, and we have no means to disentangle these two without a multiple, sequential cohort study. Lastly, just like any other panel study CILS4EU also suffers from some attrition over the waves (CILS4EU, 2016). The attrition rates vary between countries, which required us to use pooled data to maintain high statistical power in our analyses. Furthermore, we used FIML to estimate our models to minimize the effects of such attrition bias on our results.

To conclude, this paper described the trends in religiosity during adolescence for Christian native, Christian immigrant and Muslim immigrant youth, and our comparative approach across these three groups of youth revealed that religious change during adolescence is far from uniform in Western Europe. Secularization among youth occurs selectively and the rate of change varies significantly between groups, with most evident differences between Muslim and Christian youth rather than between native and immigrant youth. This finding underlines that the religious background of youth matters in relation to their religious development. Moreover, studying youth religiosity within individuals over time enabled us to move beyond the common snapshot approach of parent-child comparisons, and confirm that adolescence is indeed a dynamic period in relation to the development of religiosity, although the rate and direction of religious change varies between individuals as well as between religious groups. Our findings therefore call for future research to study explanations for within-individual changes in religiosity during adolescence in order to identify who decreases or increases their religiosity and why.

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## APPENDIX

Table A1 Number of respondents who participated in the survey, with percentages of respondents of immigrant origin in parenthesis (given participation in wave 1 and wave 2).

Countries	Wave 1 (in %)	Wave 2 (in %)	Wave 3 (in %)
England	4315 (47.4)	3304 (49.2)	2227 (48.3)
Germany	5013 (51.4)	4146 (50.0)	3260 (48.2)
			(continued on next page)

Table A1 (continued)

Countries	Wave 1 (in %)	Wave 2 (in %)	Wave 3 (in %)		
Netherlands	4363 (33.9)	3381 (31.6)	2246 (26.5)		
Sweden	5025 (48.8)	4108 (47.2)	2224 (46.7)		
Total	18716 (45.7)	14939 (44.9)	9957 (43.0)		

Table A2 Migrant generations within Christian and Muslim immigrant groups.

Migrant generation	Christian im	migrant	Muslim in	Muslim immigrant		
	N	%	N	%		
First generation	853	32.9	935	24.8		
Second generation	844	32.6	2388	63.3		
Child of transnational marriage	270	10.4	340	9.0		
Child of intermarriage	624	24.1	109	2.9		
Total	2591	100	3772	100		

Note. Data are not weighted for sampling design.

Table A3
Multiple group LGM for three indicators of religiosity with individually varying times of observation.

		Christian native		Christian immigrant		Muslim immigrant	
		Coeff.		Coeff.		Coeff.	
		Mean Variance		Mean	Variance	Mean	Variance
Subjective importance of religion	Intercept	2.284	0.634	2.900	0.980	3.644	0.374
	Slope	-0.053	0.034	-0.044	0.046	-0.024	0.019
Service attendance frequency	Intercept	2.069	0.768	2.455	1.072	2.595	1.287
	Slope	-0.057	0.026	-0.054	0.028	0.011	0.022
Praying frequency	Intercept	2.231	1.939	2.913	2.270	3.252	2.848
	Slope	-0.056	0.064	-0.056	0.067	0.025	0.087
N		6103		2590		3771	

Note. Bold parameters express significance at p < 0.05. Data are not weighted for sampling design. Age is centered on its minimum value.

Table A4
Multiple group LGMs per country for subjective importance of religion and service attendance frequency.

		Christia	n native	Christian immigrant		Muslim immigrant	
		Coeff.		Coeff.		Coeff.	
		Mean	Variance	Mean	Variance	Mean	Variance
England							
Subjective importance of religion	Intercept	2.692	0.572	3.265	0.558	3.861	0.181
	Age at wave 1	-0.115		-0.025		-0.043	
	Slope	-0.241	0.082	-0.159	0.000	-0.007	0.007
	Age at wave 1	0.076		0.040		0.005	
Service attendance frequency	Intercept	2.181	0.970	2.875	0.949	3.113	1.306
•	Age at wave 1	-0.117		-0.023		0.052	
	Slope	-0.184	0.088	-0.062	0.035	0.071	0.189
	Age at wave 1	0.083		0.001		-0.055	
	· ·					1	

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Table A4 (continued)

		Christia	Christian native		immigrant	Muslim	immigrant
		Co	eff.	Co	oeff.	C	oeff.
		Mean	Variance	Mean	Variance	Mean	Variance
N		10	050	5	557	!	566
Germany							
Subjective importance of religion	Intercept	2.417	0.472	2.432	0.616	3.479	0.281
	Age at wave 1	-0.105		0.067		0.046	
	Slope	-0.077	0.065	-0.069	0.088	0.009	0.043
	Age at wave 1	0.012		0.017		-0.029	
Service attendance frequency	Intercept	2.272	0.481	2.219	0.817	2.540	1.223
	Age at wave 1	-0.200		-0.063		0.076	
	Slope	-0.016	0.058	-0.006	0.091	0.108	0.137
	Age at wave 1	0.011		0.007		-0.030	
N	_	2095		8	328	1	170
Netherlands							
Subjective importance of religion	Intercept	2.426	0.483	2.643	0.479	3.637	0.174
	Age at wave 1	-0.053		0.107		0.017	
	Slope	-0.110	0.073	-0.034	0.000	0.077	0.028
	Age at wave 1	0.038		0.008		-0.043	
Service attendance frequency	Intercept	2.331	0.902	2.522	1.114	2.666	1.097
	Age at wave 1	-0.135		-0.150		0.033	
	Slope	-0.079	0.057	-0.236	0.103	0.138	0.055
	Age at wave 1	0.014		0.101		-0.083	
N	_	12	243	3	348	•	995
Sweden							
Subjective importance of religion	Intercept	1.945	0.458	2.613	0.884	3.348	0.389
	Age at wave 1	-0.012		0.163		0.089	
	Slope	-0.098	0.087	-0.075	0.095	-0.128	0.052
	Age at wave 1	0.015		-0.007		0.047	
Service attendance frequency	Intercept	2.252	0.370	2.580	0.681	1.760	1.004
- ,	Age at wave 1	-0.215		-0.151		0.263	
	Slope	-0.276	0.060	-0.281	0.023	-0.100	0.120
	Age at wave 1	0.104		0.111		0.034	
N	-	17	715	8	357	1	.040

Note. Bold parameters express significance at p < 0.05. Data are not weighted for sampling design. Age is centered on its minimum value. ( $\chi 2 = 137.627$ , df = 80 (p < 0.05); RMSEA = 0.026; CFI = 0.997, TLI = 0.992; SRMR = 0.018).

Table A5
Multiple group LGMs per country for subjective importance of religion and praying frequency.

		Christian native Coeff.		Christian immigrant Coeff.		Muslim immigrant  Coeff.	
		Mean	Variance	Mean	Variance	Mean	Variance
England							
Subjective importance of religion	Intercept	2.679	0.565	3.264	0.517	3.869	0.181
	Age at wave 1	-0.108		-0.023		-0.047	
	Slope	-0.228	0.076	-0.163	0.009	-0.015	0.008
	Age at wave 1	0.069		0.040		0.010	
Praying frequency	Intercept	2.442	1.726	3.594	1.565	4.316	1.415
	Age at wave 1	-0.083		-0.070		-0.106	
	Slope	-0.279	0.205	-0.050	0.086	0.129	0.150
	Age at wave 1	0.111		-0.031		-0.050	
	-					(continued	on next page)

Table A5 (continued)

		Christia	n native	Christian	immigrant	Muslim	immigrant
		Coeff.		Co	oeff.	Coeff.	
		Mean	Variance	Mean	Variance	Mean	Variance
N		10	)50	5	557	!	566
Germany							
Subjective importance of religion	Intercept	2.413	0.472	2.429	0.638	3.479	0.276
	Age at wave 1	-0.103		0.067		0.045	
	Slope	-0.078	0.066	-0.063	0.107	0.006	0.039
	Age at wave 1	0.013		0.014		-0.28	
Praying frequency	Intercept	2.703	1.351	2.873	1.573	3.156	1.869
	Age at wave 1	-0.278		-0.173		0.024	
	Slope	-0.153	0.181	-0.206	0.196	0.007	0.230
	Age at wave 1	0.049		0.085		0.009	
N	· ·	2095		8	328	1	170
Netherlands							
Subjective importance of religion	Intercept	2.430	0.486	2.651	0.478	3.639	0.170
	Age at wave 1	-0.055		0.104		0.017	
	Slope	-0.116	0.078	-0.019	0.000	0.074	0.024
	Age at wave 1	0.041		0.004		-0.043	
Praying frequency	Intercept	2.795	2.643	3.253	2.179	3.784	2.391
	Age at wave 1	-0.113		-0.143		-0.140	
	Slope	-0.047	0.242	-0.062	0.187	-0.071	0.295
	Age at wave 1	-0.018		0.036		0.037	
N		12	243	3	347	•	994
Sweden							
Subjective importance of religion	Intercept	1.946	0.468	2.617	0.882	3.347	0.384
	Age at wave 1	-0.011		0.157		0.088	
	Slope	-0.097	0.094	-0.088	0.095	-0.128	0.050
	Age at wave 1	0.013		0.003		0.049	
Praying frequency	Intercept	1.855	0.657	2.406	1.821	2.259	2.271
·	Age at wave 1	-0.143		0.143		0.339	
	Slope	-0.158	0.114	-0.142	0.112	0.021	0.290
	Age at wave 1	0.089		0.060		0.024	
N	=	17	714	8	357	1	040

Note. Bold parameters express significance at p < 0.05. Data are not weighted for sampling design. Age is centered on its minimum value.  $(\chi 2 = 106.926, df = 76 (p < 0.05); RMSEA = 0.020; CFI = 0.999, TLI = 0.996; SRMR = 0.013).$ 

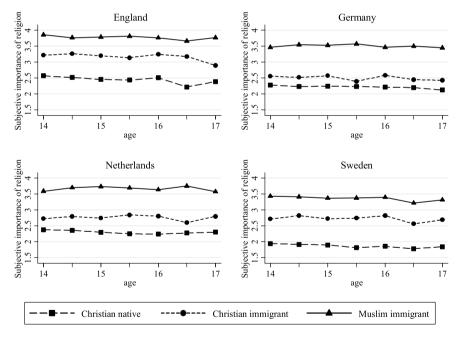
Table A6
Multiple group LGM controlling for denominations within Christianity in Germany and the Netherlands.

		Christia	Christian native		Christian immigrant Coeff.		immigrant
		Co					oeff.
		Mean	Variance	Mean	Variance	Mean	Variance
Subjective importance of religion	Intercept	2.310	0.458	2.498	0.607	3.556	0.232
	Age at wave 1	-0.101		0.068		0.031	
	Protestant <sup>1</sup>	0.268		0.032			
	Slope	-0.075	0.065	-0.038	0.086	0.033	0.032
	Age at wave 1	0.019		0.011		-0.033	
	Protestant	-0.019		-0.032			
						(continued	on next page)

## Table A6 (continued)

		Christia	Christian native		Christian immigrant		immigrant
		Co	oeff.	Coeff.		Coeff.	
		Mean	Variance	Mean	Variance	Mean	Variance
Service attendance frequency	Intercept	2.170	0.607	2.295	0.918	2.601	1.195
-	Age at wave 1	-0.202		-0.082		0.051	
	Protestant	0.320		0.001			
	Slope	-0.035	0.064	-0.047	0.110	0.106	0.114
	Age at wave 1	0.018		0.025		-0.043	
	Protestant	-0.017		-0.004			
Praying frequency	Intercept	2.534	1.737	2.979	1.798	3.425	2.104
	Age at wave 1	-0.275		-0.181		-0.049	
	Protestant	0.583		0.105			
	Slope	-0.108	0.199	-0.156	0.209	-0.018	0.260
	Age at wave 1	0.030		0.075		0.021	
	Protestant	-0.016		-0.052			
N		33	338	1	176	2165	

Note. Bold parameters express significance at p < 0.05. Data are not weighted for sampling design. Age is centered on its minimum value. ( $\chi 2 = 70.062$ , df = 51 (p < 0.05); RMSEA = 0.013; CFI = 0.999 TLI = 0.997; SRMR = 0.008). <sup>1</sup>Catholic is the reference group.



**Fig. A1.** Mean scores on subjective importance of religion among Christian native, Christian immigrant, and Muslim immigrant youth aged between 14 and 17 years old. Data are not weighted for sampling design. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant) for England: 886, 456, 477; Germany: 1441, 508, 667; Netherlands: 963, 221, 561; Sweden: 1673, 795, 932.

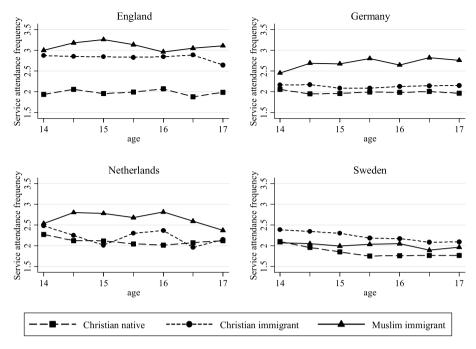


Fig. A2. Mean scores on service attendance frequency among Christian native, Christian immigrant, and Muslim immigrant youth aged between 14 and 17 years old. Data are not weighted for sampling design. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant) for England: 886, 456, 476; Germany: 1441, 509, 664; Netherlands: 963, 221, 564; Sweden: 1672, 797, 934.

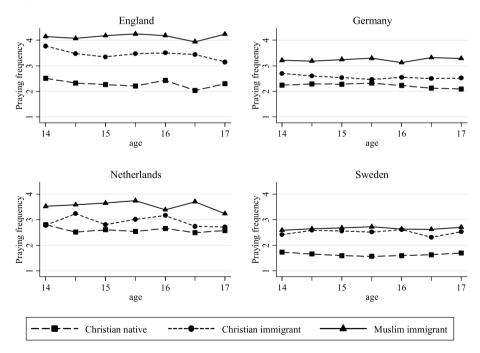


Fig. A3. Mean scores on praying frequency among Christian native, Christian immigrant, and Muslim immigrant youth aged between 14 and 17 years old. Data are not weighted for sampling design. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant) for England: 886, 451, 475; Germany: 1441, 509, 664; Netherlands: 963, 221, 562; Sweden: 1672, 796, 931.

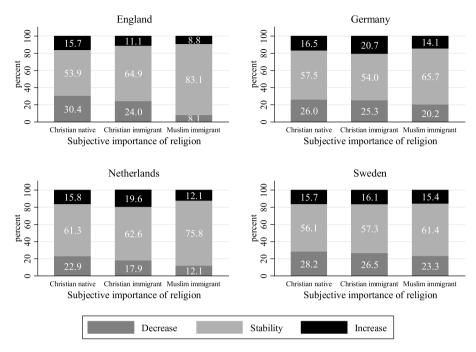


Fig. A4. Percentages of Christian native, Christian immigrant, and Muslim immigrant youth who decrease, maintain or increase their subjective importance of religion between waves. Data are not weighted for sampling design. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant) for England: 796, 416, 455; Germany: 1822, 704, 925; Netherlands: 1006, 235, 629; Sweden: 1492, 675, 787.

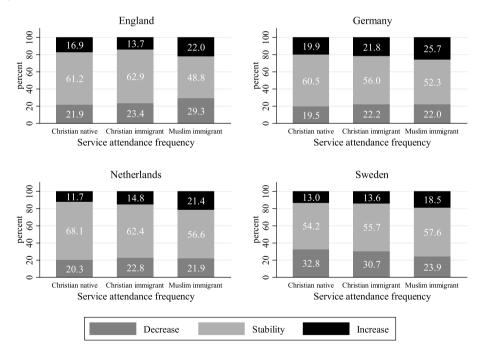
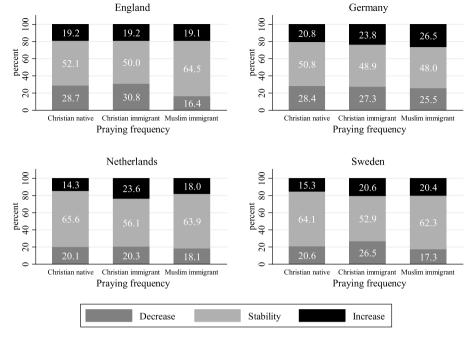
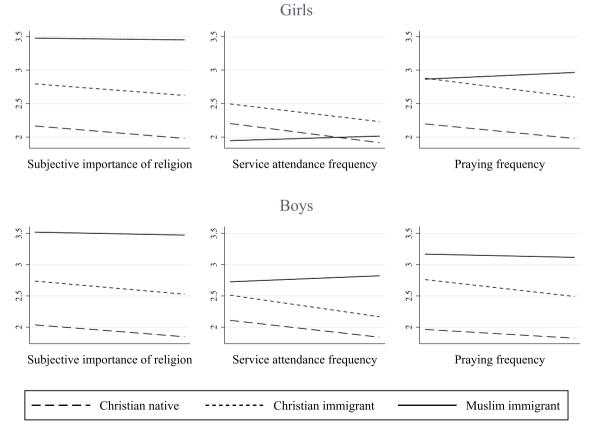


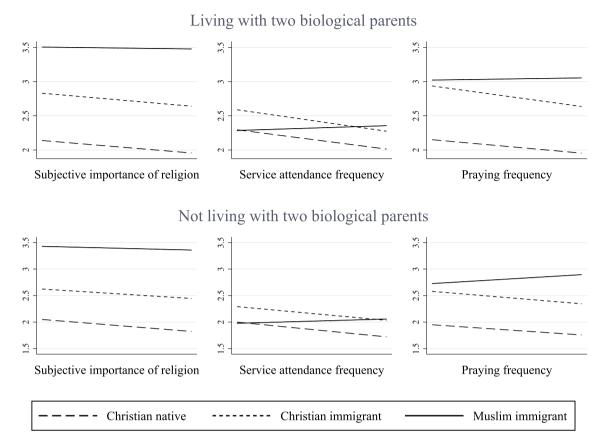
Fig. A5. Percentages of Christian native, Christian immigrant, and Muslim immigrant youth who decrease, maintain or increase their service attendance frequency between waves 1 and 3. Data are not weighted for sampling design. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant) for England: 799, 415, 451; Germany: 1822, 702, 919; Netherlands: 1011, 237, 625; Sweden: 1493, 675, 785.



**Fig. A6.** Percentages of Christian native, Christian immigrant, and Muslim immigrant youth who decrease, maintain or increase their praying frequency between waves 1 and 3. Data are not weighted for sampling design. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant) for England: 780, 402, 439; Germany: 1819, 703, 922; Netherlands: 1011, 237, 618; Sweden: 1489, 671, 780.



**Fig. A7.** Estimated effects of time for three indicators of religiosity for girls and boys. Data are not weighted for sampling design. Age, parental socioeconomic status and school performance at wave 1 are included as control variables. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant): 6103, 2590, 3771.



**Fig. A8.** Estimated effects of time for three indicators of religiosity for Christian and Muslim youth who live with two biological parents and youth who do not live with two biological parents. Data are not weighted for sampling design. Age, parental socioeconomic status and school performance at wave 1 are included as control variables. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant): 6103, 2590, 3771.

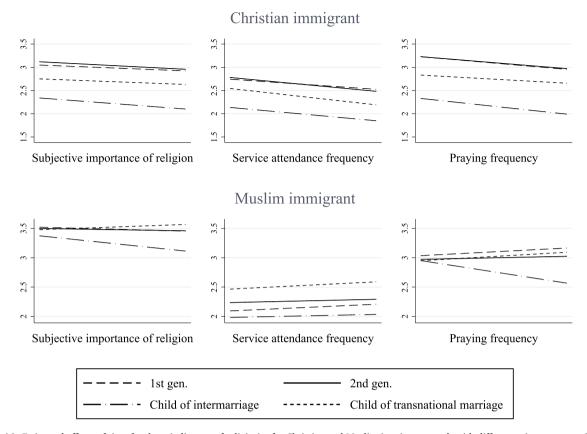


Fig. A9. Estimated effects of time for three indicators of religiosity for Christian and Muslim immigrant youth with different migrant generational status. Data are not weighted for sampling design. Age, parental socioeconomic status and school performance at wave 1 are included as control variables. Number of observations (Chr. native, Chr. immigrant, Mus. immigrant): 6103, 2590, 3771.

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